

WHAT IS CLAIMED IS:

1. A language independent voice communication system comprises:
a translation unit for translating a one language input speech to one or more corresponding other language speeches.

2. The language independent voice communication system of claim 1 wherein the translation unit comprises:

a speech recognizer for recognizing the input speech;
at least one translation module electrically connected to the speech recognizer for translating the recognized first language input speech to the corresponding other language speech; and

output means electrically connected to the translation modules for outputting the translated speeches.

3. The language independent voice communication system of claim 2 wherein the speech recognizer is provided with an A/D converter for converting an analog input speech signal into a digital input speech signal.

4. The language independent voice communication system of claim 2 wherein the translation module comprises:

a first language reference database for storing first language speech samples;

a second language reference database for storing second language speech samples; and

a translation controller for controlling translation of the first language digital input speech signal into a second language digital output speech signal by referring to the first and second language reference databases.

5 5. The language independent voice communication system of claim 4 wherein the output means comprises a speaker for outputting the second language speech.

6. The language independent voice communication system of claim 4 wherein the output means comprises:

a D/A converter for converting the second language digital output speech signal into a second language analog output speech signal;

a modulator for modulating the analog output speech signal; and

an antenna for transmitting the modulated output speech signal.

7. The language independent voice communication system of claim 4 wherein the translation controller translates the first language speech samples stored in the first language reference database to corresponding second language speech samples stored in the second language reference database.

8. The language independent voice communication system of claim 4 wherein the first language reference database has a first language mapping table for mapping the first language speech samples to corresponding first language phrases.

9. The language independent voice communication system of claim 8 wherein the second language reference database has a second language mapping table for mapping the second language speech samples to corresponding second language phrases.

10. The language independent voice communication system of claim 9 wherein the translation controller translates the first language phrases to corresponding second language phrases by referring to the first and second language mapping tables.

11. The language independent voice communication system of claim 10 wherein the second language phrase is outputted as a second language digital speech signal under control of the translation controller.

12. The language independent voice communication system of claim 11 wherein the second language digital speech signal is converted into a second language analog signal by the D/A converter.

13. The language independent voice communication system of claim 7 wherein the translation controller looks up the first language reference database for finding target first language speech sample corresponding to the first language speech signal.

14. The language independent voice communication system of claim 13 wherein the translation controller calculates a percentage of an identical proportion between the first language speech signal and the first language speech samples.

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15. The language independent voice communication system of claim 14 wherein the translation controller extracts candidate samples on the basis of the identical proportion.

16. The language independent voice communication system of claim 15 wherein the translation controller determines the first language reference samples having identical percentage value equal to or greater than a predetermined threshold value as the candidate samples.

17. The language independent voice communication system of claim 16 wherein the translation controller determines one of the candidate samples having a highest identical percentage value as a target first language speech sample.

18. The language independent voice communication system of claim 17 the translation controller detects lately referred times of the reference samples when a plurality of candidate samples having 100% of identical percentage.

19. The language independent voice communication system of claim 17

wherein the translation controller learns and stores the target first language speech sample in a predetermined area of the first language reference database together with the proportional value so as to accelerate translation by referring to speech samples in descending order of the percentage when a input speech signal having a same pattern is inputted next time.

20. The language independent voice communication system of claim 19 wherein the speech samples are grouped in at least one group according to referred frequency such that the translation controller refers to the reference database from a frequently referred group having a highest reference priority.

21. The language independent voice communication system of claim 4 wherein translation module is a removable/attachable read only memory pack (ROM PACK) so as to be changed according to a pair of translation-required languages.

22. The language independent voice communication system of claim 4 wherein a plurality of translation modules having a pair of different language reference databases are attached to the translation unit in parallel so as to translate one language input speech to at least one other language output speech.

23. The language independent voice communication system of claim 22 wherein the translation modules have respective language code tables and

detect the translation language pair by looking up the table when a sequential language codes are inputted.

24. The language independent voice communication system of claim 1 further comprises at least one counterpart translation unit.

25. The language independent voice communication system of claim 24 wherein each translation unit is interposed between a main body and a handset of a telephone set.

26. The language independent voice communication system of claim 25 wherein handset is connected to an input port of the translation unit and the main body of the telephone is connected to an output port of the translation unit.

27. The language independent voice communication system of claim 26 wherein the translation unit comprises:

a speech recognizer for recognizing the input speech ;

at least one translation module electrically connected to the speech recognizer for translating the recognized first language input speech to the corresponding other language speech; and

output means electrically connected to the translation modules for outputting the translated speeches.

28. The language independent voice communication system of claim 27

wherein the speech recognizer is provided with an A/D converter for converting an analog input speech signal into a digital speech signal.

29. The language independent voice communication system of claim 27 wherein the translation module comprises:

a first language reference database for storing first language speech samples;

a second language reference database for storing second language speech samples; and

a translation controller for controlling translation of the first language speech signal into a second language speech.

30. The language independent voice communication system of claim 27 wherein the output means connected to a handset connection port of the main body of the telephone set such that the second language speech signal is transmitted to the counterpart translation unit via a public switched telephone network (PSTN).

31. The language independent voice communication system of claim 29 wherein the translation controller translates the first language speech samples stored in the first language reference database to corresponding second language speech samples stored in the second language reference database.

32. The language independent voice communication system of claim 29

wherein the first language reference database has a first language mapping table for mapping the first language speech samples to corresponding first language phrases.

5 33. The language independent voice communication system of claim 29 wherein the second language reference database has a second language mapping table for mapping the second language speech samples to corresponding second language phrases.

10 34. The language independent voice communication system of claim 33 wherein the translation controller translates the first language phrases to corresponding second language phrases by referring to the first and second language mapping tables.

15 35. The language independent voice communication system of claim 34 wherein the second language phrase is outputted as a second language digital speech signal under control of the translation controller.

20 36. The language independent voice communication system of claim 35 wherein the second language digital speech signal is converted into a second language analog signal by the D/A converter.

 37. The language independent voice communication system of claim 29 wherein the translation controller looks up the first language reference database

for finding target first language speech sample corresponding to the first language speech signal.

38. The language independent voice communication system of claim 37 wherein the translation controller calculates a percentage of an identical proportion between the first language speech signal and the first language speech samples.

39. The language independent voice communication system of claim 38 wherein the translation controller extracts candidate samples on the basis of the identical percentage.

40. The language independent voice communication system of claim 39 wherein the translation controller determines the first language reference samples having identical percentage value equal to or greater than a predetermined threshold value as the candidate samples.

41. The language independent voice communication system of claim 40 wherein the translation controller determines one of the candidate samples having a highest identical percentage value as a target first language speech sample.

42. The language independent voice communication system of claim 41 the translation controller detects lately referred times of the reference samples

when a plurality of candidate samples having 100% of identical percentage.

43. The language independent voice communication system of claim 41 wherein the translation controller learns and stores the target first language speech sample in a predetermined area of the first language reference database together with the proportional value so as to accelerate translation by referring to speech samples in descending order of the percentage when a input speech signal having a same pattern is inputted next time.

44. The language independent voice communication system of claim 43 wherein the speech samples are grouped in at least one group according to referred frequency such that the translation controller refers to the reference database from a frequently referred group having a highest reference priority.

45. The language independent voice communication system of claim 27 wherein the translation module is a removable/attachable read only memory pack (ROM PACK) so as to be changed according to a pair of translation-required languages.

46. The language independent voice communication system of claim 27 wherein a plurality of translation modules having a pair of different language reference databases are attached to the translation unit in parallel so as to translate one language input speech to at least one other language output speech.

47. The language independent voice communication system of claim 46 wherein the translation modules have respective language code tables and detect the translation language pair by looking up the table when a sequential language codes are inputted.

48. The language independent voice communication system of claim 24 wherein translation unit is connected to a telephone set and/or cellular phone.

49. The language independent voice communication system of claim 48 wherein the translation unit comprises:

a speech recognizer for recognizing the input speech ;

at least one translation module electrically connected to the speech recognizer for translating the recognized first language input speech to the corresponding other language speech; and

output means electrically connected to the translation modules for outputting the translated speeches.

50. The language independent voice communication system of claim 49 wherein the speech recognizer is provided with an A/D converter for converting an analog input speech signal into a digital speech signal.

51. The language independent voice communication system of claim 49 wherein the translation module comprises:

a first language reference database for storing first language speech samples;

a second language reference database for storing second language speech samples; and

5 a translation controller for controlling translation of the first language speech signal into a second language speech.

52. The language independent voice communication system of claim 49 wherein the output means of the translation unit is connected to a headset port of a cellular phone or/and a handset port of main body of a telephone set and an input port of the translation unit is connected to a headset of the cellular phone or/and a handset of the telephone set.

53. The language independent voice communication system of claim 51 wherein the translation controller translates the first language speech samples stored in the first language reference database to corresponding second language speech samples stored in the second language reference database.

54. The language independent voice communication system of claim 51 wherein the first language reference database has a first language mapping table for mapping the first language speech samples to corresponding first language phrases.

55. The language independent voice communication system of claim 51

wherein the second language reference database has a second language mapping table for mapping the second language speech samples to corresponding second language phrases.

5 56. The language independent voice communication system of claim 55 wherein the translation controller translates the first language phrases to corresponding second language phrases by referring to the first and second language mapping tables.

10 57. The language independent voice communication system of claim 56 wherein the second language phrase is outputted as a second language digital speech signal under control of the translation controller.

15 58. The language independent voice communication system of claim 57 wherein the second language digital speech signal is converted into a second language analog signal by the D/A converter.

20 59. The language independent voice communication system of claim 51 wherein the translation controller looks up the first language reference database for finding target first language speech sample corresponding to the first language speech signal.

60. The language independent voice communication system of claim 59 wherein the translation controller calculates a percentage of an identical

proportion between the first language speech signal and the first language speech samples.

5 61. The language independent voice communication system of claim 60 wherein the translation controller extracts candidate samples on the basis of the identical percentage.

62. The language independent voice communication system of claim 61 wherein the translation controller determines the first language reference samples having identical percentage value equal to or greater than a predetermined threshold value as the candidate samples.

63. The language independent voice communication system of claim 62 wherein the translation controller determines one of the candidate samples having a highest identical percentage value as a target first language speech sample.

64. The language independent voice communication system of claim 63 the translation controller detects lately referred times of the reference samples when a plurality of candidate samples having 100% of identical percentage.

65. The language independent voice communication system of claim 63 wherein the translation controller learns and stores the target first language speech sample in a predetermined area of the first language reference

database together with the proportional value so as to accelerate translation by referring to speech samples in descending order of the percentage when a input speech signal having a same pattern is inputted next time.

5 66. The language independent voice communication system of claim 65 wherein the speech samples are grouped in at least one group according to referred frequency such that the translation controller refers to the reference database from a frequently referred group having a highest reference priority.

10 67. The language independent voice communication system of claim 49 wherein the translation module is a removable/attachable read only memory pack (ROM PACK) so as to be changed according to a pair of translation-required languages.

15 68. The language independent voice communication system of claim 49 wherein a plurality of translation modules having a pair of different language reference databases are attached to the translation unit in parallel so as to translate one language input speech to at least one other language output speech.

20 69. The language independent voice communication system of claim 68 wherein the translation modules have respective language code tables and detect the translation language pair by looking up the table when a sequential language codes are inputted.